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WCDMA 3G-based private network system

The wireless access system solutions of bank ATM terminal

Statement

Copyright:

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Abstract: This article provides terminal wireless access system design principles and

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implementation of the bank ATM terminal or query terminal, which is based on WCDMA 3G network. It introduces the basic knowledge of WCDMA technology, describes the WCDMA wireless transmission used in bank ATM terminal or inquiry terminal Implementation of a wireless access system. The practical application, obtain the desired results.

Key words:WCDMA；DTU；Internet；ATM； Query terminal

I. Preface

With the rapid development of the financial industry, the traditional financial services showing a wide range of development mode, online banking, telephone banking, mobile banking and other emerging financial services quietly rising, while national data concentration system construction are also mentioned on the agenda, all the signs are harbingers of China's financial industry is moving in the direction of international development, innovation and service model has become an inevitable trend.

In the banking system, the existing self-service devices (such as ATM terminals, kiosk, etc.) the majority of the wired network access. This access, allowing self-service equipment affected wired network coverage, can only be set in the financial institutions and outlets inside major business organizations, shackled service model. At the same time, it laid the way self-service equipment and tangible business field is still bound to weaken the convenient self-service equipment, convenient features, can not achieve the original intention of expanding the use of self-service outlets trading business coverage.

Instead wireless communication network is not affected by physical factors. Relying on high-speed 3G wireless network platform, financial institutions can be routed to a wireless self-service device network coverage of any region ah, can effectively expand business coverage, so as to provide a good platform for the network to improve business transactions.

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In addition, the use of wireless access, financial institutions can be directly self-service facilities provided on upscale quality customer focused community service agencies in the community, the community of small business facilities, an effective solution to community banks and stores line network access problems for high-end provide efficient financial services.

II. WCDMA network Introduction

WCDMA initiator mainly European and Japanese standards organizations and vendors, WCDMA inherited a second-generation high degree of standardization of GSM mobile communication system and open and good, standardization is progressing well. WCDMA in the 3G network construction, China Unicom will start synchronizing 200 cities in the country, all of the base stations are equipped with HSDPA, HSUPA.HSDPA downlink rate 14.4MBPS, upstream rate can reach 5.76MBPS, "the national population coverage in 2011 could reach 75%, 2G + 3G network coverage of 96% "pilot-aided coherent demodulation; Adapting multi-rate transmission, while the multi-rate, multi-media business by changing the multi-code spreading ratio and parallel transmission the way to achieve; on the downlink fast, efficient power control significantly reduces the MAI system and improve the system capacity, but also reduces the transmission of power.

III. Xiamen Caimore Wcdma 3G Router Introduction

CM8150R WCDMA / HSDPA / HSUPA Router wireless router uses high-performance 32-bit ARM9 industrial communication processor for embedded real-time operating system software support platform, the system integrates the full range from logical link layer to the application layer protocol, whileIt provides RS232 and 10 / 100M Ethernet interface, support for static and dynamic routing, PPP server and PPP client,

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VPN (including PPTP and IPSEC), DHCP server and DHCP client, DDNS, firewall, NAT,

DMZ host functions. Provide users with safe, high-speed, reliable, all kinds of

wireless routing protocol routed network.

CM8150R real shot pictures

A. 3G Router block diagram of Xiamen Caimore wcdma as follows:

WCDMA wireless communication module	Data communication interface	High-speed embedded processing systems

User interface

Power interface	RS232 serial port asynchronous communication	Headset Interface

B. Wireless parameters

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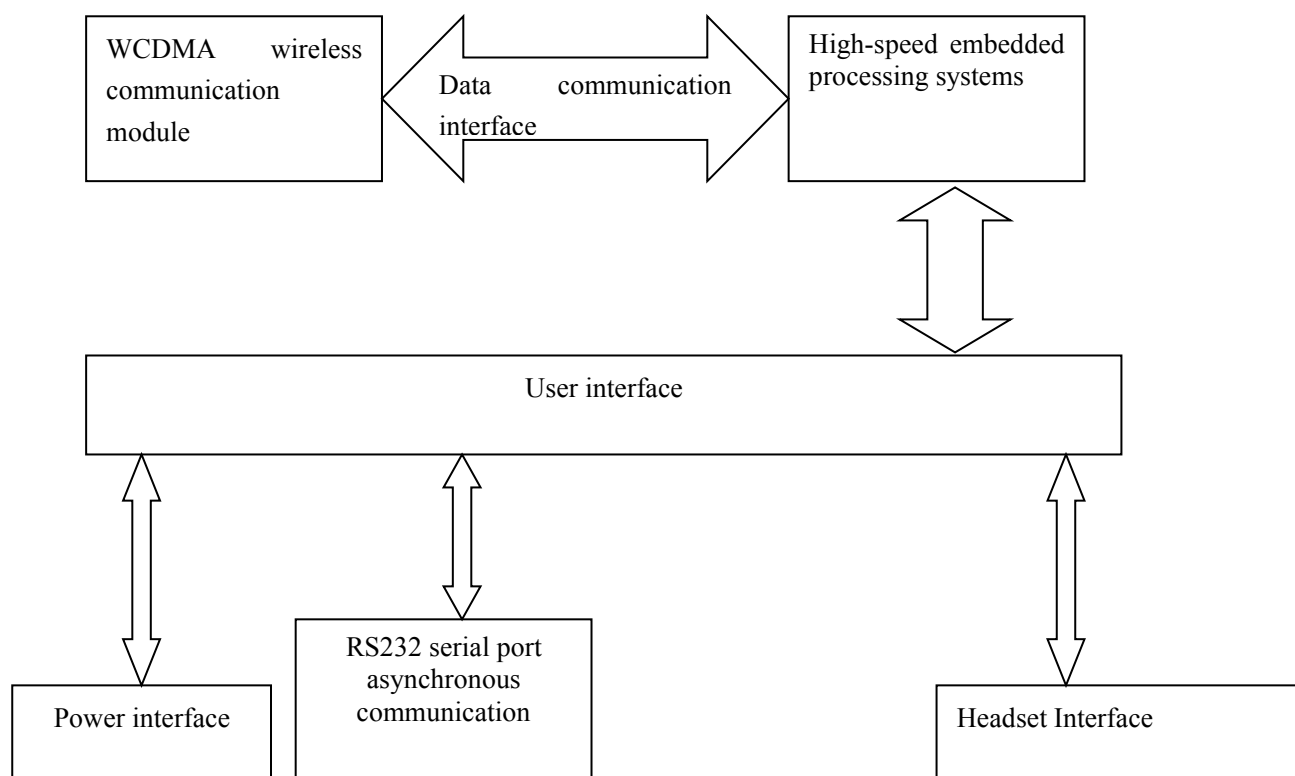**Contact person: Cynthia Wang   E-mail: sales09@caimore.com**
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1. supports UMTS / HSDPA / WCDMA 850/1900 / 2100MHz

2. Dual-band EGSM 850/900/1800 / 1900MHz

3. Support GPRS / EDGE CLASS 12

4. Data Rate

HSDPA / HSUPA mode:

Downlink up to 7.2Mbps

Uplink up to 5.76Mbps

WCDMA mode:

Downlink / Uplink up to 384Kbps

EDGE mode:

Downlink up to 236.8Mbps

Uplink up to 118Kbps

GPRS mode:

Downlink up to 85.6Mbps

Uplink up to 42.8Kbps

CSD mode:

Downlink / Uplink up to 14.4Kbps

C. Software features

1. Support VPN secure tunneling features, including PPTP + MPPE and IPSEC

2. Intelligent anti dropped support of online testing, online maintenance of automatic

redial dropped calls, to ensure that equipment is always online.

3. Support IPTABLES firewall, packet filtering

4. Support for multiple protocols: TCP / IP, UDP, ICMP, SMTP, HTTP, POP3, OICQ,

TELNET, FTP and so on.

5. Support dynamic and static routes

6. Support DHCP function

7. Support NAT function, such as SNAT, DNAT

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8. Supports dynamic DDNS

9. Support DMZ host

10. Support routing and forwarding, which also supports serial data transmission ,, data center management

11. Support APN / VPDN network

12. WEB easy configuration, support remote WEB management

13. Support telnet management, user-friendly interactive environment console shell

14. Support for multiple terminals to share export WAN router ppp

15. support multiple wireless dial-up mode: automatic assignment, designated IP, specify the local peer IP

16. Support As a PPP server, multiple authentication methods, support two-way authentication

17. Easy to use COM and SYSLOG system diagnostics, debugging function

18. Supports local serial software upgrade

19. Support TFTP remote software upgrade

20. Support Real-Time Clock

21. supports LINUX and WINDOWS operating systems

D.Hardware System

1, CPU: Industrial ARM9 CPU, 200MPS, 16K Dcache, 16K Icache

2, FLASH: 8MB (expandable to 32MB)

3, SDRAM: 64MB (expandable to 256MB)

4, the interface:

Ethernet port:

A 10/100 Base-T Ethernet port,

Shielded RJ-45 1,5 kV isolation transformer,

Ethernet IEEE 802-3, 802-2

Serial:

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RS232 serial port, (Support RS422 / RS485 if needed)

Rate: 110bps ~ 230400bps

Data bits: 7 or 8

Parity: None, Even, Odd

Stop bits: - 1 or 2

Flow contro: None or RTS / CTS

Protection - 15 kV ESD and short circuit

Console: RS-232, 115200 bps, 8 data bits, 1 stop bit, no parity (8N1)

Indicator:

Has the power, communications, online and Ethernet port LINK / ACT indicator.

Antenna Interface:

Standard SMA female antenna interfaces, the characteristic impedance of 50 ohms.

SIM / UIM card interface:

Standard drawer user card interface (3V / 5V).

Power Interface:

Standard 3-pin power jack.

Voice interface:

Standard headphone microphone interface. (Reserved, optional)

6, power supply:

External power supply: DC 9V 1.5A

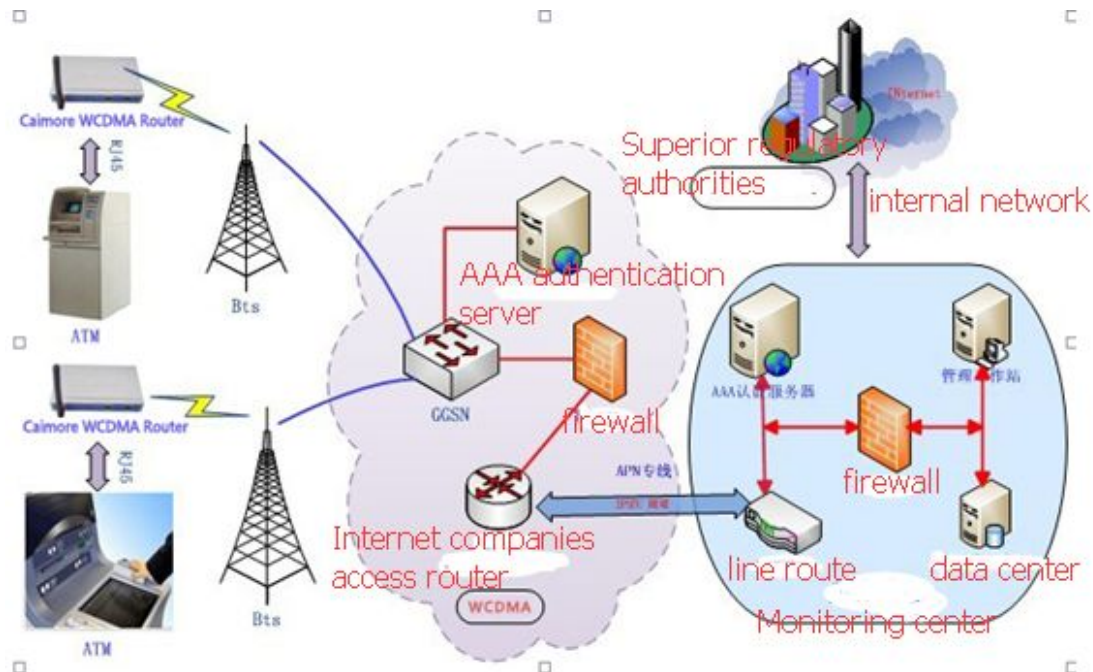Wide voltage power supply: DC 5-32V

7, the other parameters:

Operating ambient temperature -25 ~ + 65ºC

Storage temperature -40 ~ + 85ºC

95% relative humidity (non-condensing)

IV. System Networking

1. System topology

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The system consists of bank machines (ATM or self-service equipment, etc.), Xiamen Caimore WCDMA 3G Router, WCDMA wireless network, between China Unicom and bank lines, Bank routers, servers and other equipment, etc. Bank.

Data flow process is as follows: Bank of ATM equipment by Xiamen Caimore WCDMA Router, to transfer the data to the WCDMA wireless network, WCDMA wireless network through DDN leased line or frame relay data transmission to the bank of the router, then routed through the router to the bank on the server. If the bank for more security control, which may increase the bank Radius authentication server (you can use, because the existing AAA server for authentication when WCDMA wireless access).

V. WCDMA special network access Introduction

1. WCDMA special network access VPDN / APN:

    bank access through a 2M DDN leased line or frame relay Unicom's WCDMA network, using the Internet router between the two sides carried out wide-area private IP address

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connection, establish an encrypted tunnel between the router and user authentication Unicom certified router.

Unicom Bank allocated special VPDN / APN, ordinary users can not access the VPDN / APN. Only China Unicom WCDMA specifically assigned card to enter the VPDN / APN network, to prevent other unauthorized users from entering.

RADIUS server users to build internal, remote authentication server as an internal user access. Only authorized users are allowed access to ensure the internal security of the user.

users to establish internal DHCP server, assign user internal address authenticated users.

end encryption: Between the ATM terminal and server platforms to-end encryption, to avoid transmission of information throughout the process may leak.

use a firewall to isolate the two sides, and the IP address and port filtering on the firewall.

2. WCDMA private network system terminal access login server platform process is as follows:

1) issue a WCDMA user logon request that includes Unicom WCDMA private network system is specifically assigned private network VPDN / APN;

2) Upon request of the VPDN / APN, China Unicom network to issue its DNS server queries, find a server connected to the platform GGSN, and the GTP tunneling of user requests to the GGSN;

3) GGSN user authentication information (including phone number, user accounts, passwords, etc.) through a dedicated line to the Radius authentication;

4) Radius authentication server to see the phone number and other authentication information, confirmation is sent to the user's legitimate request, to the DHCP server requesting allocation of user addresses;

5) Radius authentication by Radius confirmation message is sent to the GGSN carries user's address;

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6) You get the IP address, you can carry a packet of information inquiry system WCDMA private network and business processing platform for a visit.

VI. Conclusion

One of the main advantages of WCDMA 3G network is the transmission speed, and now basically all kinds of business can be realized in the above, including video surveillance, and WCDMA and unrestricted cabling, easy construction, short construction period, faster results. Bank ATM, inquiry terminals, payment terminals is very suitable for use WCDMA networks to achieve transfer transaction or monitoring data of.

Xiamen Caimore WCDMA Router its transmission speed and performance stability for our customers commendable, is now widely used in domestic banks, postal savings, environmental protection, security and other industries, and exported to Hong Kong, Indonesia, India, Russia, Brazil, Ghana and other countries.